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### REMARKS

Applicant respectfully requests further examination and reconsideration in view of the the comments set forth fully below. Claims 1-43 were pending. Within the Office Action, claims 1-4, 13-15, 17-20, 29, 30, 39, 40 and 43 have been rejected, and claims 5-12, 16, 21-28, 30-38 and 41-42 have been objected to. Claims 1-43 are now pending.

### Information Disclosure Statements

As a preliminary matter, the Applicant has enclosed six (6) Form PTO-1449s corresponding to each of the information disclosure statements filed in this matter on May 10, 2001, June 12, 2001, September 27, 2001, January 4, 2002, January 27, 2004 and March 10, 2004, respectively. To date, the Applicant has not received initialed copies of these forms from the Examiner. The Applicant respectfully requests that the Examiner consider these information disclosure statements and return the enclosed forms with his initials.

### Rejections Under 35 U.S.C. § 103

Within the Office Action, claims 1, 13, 17, 29 and 39 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over figure 1 admitted as the prior art by Applicant (hereinafter "background") in view of U.S. Patent No. 5,625,583 to Hyatt (hereinafter "Hyatt"). The Applicant respectfully disagrees with this rejection. The background teaches a superhet receiver including an amplifier 10, an L.O. Input Mixer 20 and an IF Filter 40 configured to receive an RF Input. The superhet receiver is coupled, through an appropriate AC coupling, to an IF Limiter 50, which is coupled to a pulse count demodulator, which includes a monostable 60 and a data filter [Present Application, pg. 1, line 15 - page 3, line 8].

As recognized by the Office Action, the background does not teach the feature of the summing circuit coupled to each of the output pulses for combining the output pulses into a composite waveform and outputting the composite waveform. Furthermore, the background does not teach a superhet receiver for **outputting an in-phase signal and one or more phase shifted signals**, nor does the background teach a **plurality of monostables** for receiving the in-phase signal and one or more phase shifted signals.

Hyatt teaches an optical system having an optical image projected on an analog memory, such as a CCD array, generating analog charge signals in the analog memory [Hyatt, Abstract]. Hyatt also teaches a compositing operation by adding corresponding recirculated analog samples. Hyatt does not teach the a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the

composite waveform. Therefore, Hyatt does not teach any limitation of independent claims 1, 13, 17, 29 and 39. Accordingly, neither the background, Hyatt nor their combination teach the features of the superhet receiver, the plurality of monostables or the summing circuit as claimed in the present invention.

In contrast to the teachings of the background, Hyatt and their combination, the superhet receiver of the present invention comprises a quadrature IF and improved demodulator and is configured to recover a modulated signal from a low IF in a radio receiver. The superhet receiver receives a FM radio-frequency signal, converts the input RF signal to an in-phase IF signal and an IF signal in phase quadrature to the in-phase signal, and output the IF signals. A plurality of monostables receive the IF signals and each monostable generates a corresponding output pulse. By combining the monostable output pulses, a complex waveform is generated. The complex waveform includes the demodulated signal and a carrier signal at a significantly higher IF. The complex waveform is filtered to recover the desired modulated signal. As described above, neither the background, Hyatt nor their combination teach the feature of the superhet receiver, the plurality of monostables or the summing circuit as described and claimed.

The Applicant respectfully submits that the age of the cited reference indicates a lack of some teaching or suggestion supporting the combination. The Hyatt patent issued on April 29, 1997. The present application was filed on November 22, 2000, over three years after Hyatt issued. The Applicant respectfully submits that if the combination of the cited reference and the background was obvious, as is stated in the Office Action, then it is probable that such a combination would have been made prior to the filing of the present application. Therefore, the Applicant submits that this combination is indeed not obvious.

The Applicant respectfully submits that the Examiner is relying upon hindsight, having knowledge of the Applicant's own structure. But for this knowledge, the combination of references would not have occurred to the Examiner, as it did not occur to those skilled in the art to make the asserted combination. In other words, the combination proposed by the Examiner is being made only in light of his knowledge of the Applicant's disclosure.

The Applicant respectfully suggests that in the Office Action, the rejections evidence 'picking and choosing' features of the cited references and combining them when there is no suggestion in those references to do so. It is impermissible within the framework of a 35 U.S.C. §103 rejection to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art *In re Wesslau*, 353 F.2d 238 at 241, 147 USPQ 391 at 393 (CCPA 1965). Furthermore, obviousness cannot be established by combining the

teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. Teachings of references can be combined only if there is some suggestion or incentive to do so.

The independent claim 1 is directed to an apparatus for receiving an input signal and outputting a recovered modulated signal comprising a superhet receiver for receiving the input signal and for outputting an in-phase signal and one or more phase shifted signals, a plurality of monostables for receiving the in-phase signal and one or more phase shifted signals, each monostable producing an output pulse, a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform and a filtering circuit for receiving the composite waveform, recovering a modulated signal and outputting the modulated signal. As described above, neither the background, Hyatt nor their combination teach the features of a superhet receiver for receiving the input signal and for outputting an in-phase signal and one or more phase shifted signals, a plurality of monostables for receiving the in-phase signal and one or more phase shifted signals, each monostable producing an output pulse, a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform. For at least these reasons, the independent claim 1 is allowable over the teachings of the background, Hyatt and their combination.

The independent claim 13 is directed to a method of demodulating an FM signal using a superhet receiver and a demodulator comprising applying an input signal to a superhet receiver for generating an in-phase signal and one or more phase shifted signals, providing the in-phase signal and the one or more phase shifted signals to a plurality of monostables for generating a plurality of generated output pulses, summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform and filtering the composite waveform from the summing circuit in a filtering circuit for outputting a modulated signal therefrom. As described above, neither the background, Hyatt nor their combination teach the features of applying an input signal to a superhet receiver for generating an in-phase signal and one or more phase shifted signals, providing the in-phase signal and the one or more phase shifted signals to a plurality of monostables for generating a plurality of generated output pulses and summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform. For at least these reasons, the independent claim 13 is allowable over the teachings of the background, Hyatt and their combination.

The independent claim 17 is directed to an apparatus for receiving an input signal and outputting a recovered modulated signal comprising means for applying an input signal to a superhet receiver for generating an in-phase signal and one or more phase shifted signals, means for providing the in-phase signal and the one or more phase shifted signals to a plurality of monostables for generating a plurality of generated output pulses, means for summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform and means for filtering the composite waveform from the summing circuit in a filtering circuit for outputting a modulated signal therefrom. As described above, neither the background, Hyatt nor their combination teach the means for applying an input signal to a superhet receiver for generating an in-phase signal and one or more phase shifted signals, means for providing the in-phase signal and the one or more phase shifted signals to a plurality of monostables for generating a plurality of generated output pulses and means for summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform. For at least these reasons, the independent claim 17 is allowable over the teachings of the background, Hyatt and their combination.

The independent claim 29 is directed to an apparatus for receiving an input signal and outputting a recovered modulated signal comprising a superhet receiver for receiving the input signal and for outputting an in-phase signal and one or more phase shifted signals, a plurality of monostables for receiving the superhet receiver output signals, the monostables configured into pairs whereby the number of monostable pairs is equal to the number of output signals from the superhet receiver, and each monostable producing an output pulse, a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform and a filtering circuit for receiving the composite waveform, recovering a modulated signal and outputting the modulated signal. As described above, neither the background, Hyatt nor their combination teach the features of a superhet receiver for receiving the input signal and for outputting an in-phase signal and one or more phase shifted signals, a plurality of monostables for receiving the superhet receiver output signals, the monostables configured into pairs whereby the number of monostable pairs is equal to the number of output signals from the superhet receiver, and each monostable producing an output pulse, a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform. For at least these reasons, the independent claim 29 is allowable over the teachings of the background, Hyatt and their combination.

The independent claim 39 is directed to an apparatus for receiving an input signal and outputting a recovered modulated signal comprising a superhet receiver for receiving the input signal and for outputting an in-phase signal and a signal in phase-quadrature to the in-phase signal, a plurality of monostables for receiving the in-phase signal and the signal in phase-quadrature, the monostables configured into pairs wherein a first monostable pair receives the in-phase signal and a second monostable pair receives the signal in phase-quadrature, and further wherein each monostable produces an output pulse, a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform and a filtering circuit for receiving the composite waveform, recovering a modulated signal and outputting the modulated signal. As described above, neither the background, Hyatt nor their combination teach the features of a superhet receiver for receiving the input signal and for outputting an in-phase signal and a signal in phase-quadrature to the in-phase signal, a plurality of monostables for receiving the in-phase signal and the signal in phase-quadrature, the monostables configured into pairs wherein a first monostable pair receives the in-phase signal and a second monostable pair receives the signal in phase-quadrature, and further wherein each monostable produces an output pulse and a summing circuit coupled to each of the monostable output pulses for combining the monostable output pulses into a composite waveform and outputting the composite waveform. For at least these reasons, the independent claim 39 is allowable over the teachings of the background, Hyatt and their combination.

Within the Office Action, claims 2-4, 14, 15, 18, 19, 20, 30, 40 and 43 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the background in view of Hyatt, and further in view of U.S. Patent No. 6,175,746 to Nakayama (hereinafter "Nakayama"). The Applicant respectfully disagrees with this rejection.

Claims 2-4 are all dependent on the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 2-4 are all also allowable as being dependent on an allowable base claim.

Claims 14 and 15 are all dependent on the independent claim 13. As discussed above, the independent claim 13 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 14 and 15 are all also allowable as being dependent on an allowable base claim.

Claims 18-20 are all dependent on the independent claim 17. As discussed above, the independent claim 17 is allowable over the teachings of the background, Hyatt and their

combination. Accordingly, the dependent claims 18-20 are all also allowable as being dependent on an allowable base claim.

Claim 30 is dependent on the independent claim 29. As discussed above, the independent claim 29 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claim 30 is also allowable as being dependent on an allowable base claim.

Claim 40 is dependent on the independent claim 39. As discussed above, the independent claim 39 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claim 40 is also allowable as being dependent on an allowable base claim.

The independent claim 43 is directed to a method of demodulating an FM signal using a superhet receiver and a demodulator comprising applying an input signal to a superhet receiver for generating an in-phase signal and a signal in phase-quadrature to the in-phase signal, providing the in-phase signal and the signal in phase-quadrature to a plurality of monostables, the monostables configured into pairs wherein a first monostable pair receives the in-phase signal and a second monostable pair receives the signal in phase-quadrature, and further wherein each monostable produces an output pulse, summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform and filtering the composite waveform from the summing circuit in a filtering circuit for outputting a modulated signal therefrom. As described above, neither the background, Hyatt nor their combination teach the features of applying an input signal to a superhet receiver for generating an in-phase signal and a signal in phase-quadrature to the in-phase signal, providing the in-phase signal and the signal in phase-quadrature to a plurality of monostables, the monostables configured into pairs wherein a first monostable pair receives the in-phase signal and a second monostable pair receives the signal in phase-quadrature, and further wherein each monostable produces an output pulse and summing the plurality of generated output pulses from each of the plurality of monostables in a summing circuit for forming a composite waveform. For at least these reasons, the independent claim 43 is allowable over the teachings of the background, Hyatt, Nakayama and their combination.

#### **Allowable Subject Matter**

Within the Office Action, claims 5-12, 16, 21-28, 31-38 and 41-42 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-12 are all dependent on the independent claim 1. As discussed above, the independent claim 1 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 5-12 are all also allowable as being dependent on an allowable base claim.

Claim 16 is dependent on the independent claim 13. As discussed above, the independent claim 13 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claim 16 is also allowable as being dependent on an allowable base claim.

Claims 21-28 are all dependent on the independent claim 17. As discussed above, the independent claim 17 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 21-28 are all also allowable as being dependent on an allowable base claim.

Claims 31-38 are all dependent on the independent claim 29. As discussed above, the independent claim 29 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 31-38 are all also allowable as being dependent on an allowable base claim.

Claims 41-42 are all dependent on the independent claim 39. As discussed above, the independent claim 39 is allowable over the teachings of the background, Hyatt and their combination. Accordingly, the dependent claims 41-42 are all also allowable as being dependent on an allowable base claim.

For the reasons given above, Applicant respectfully submits that the claims are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,  
HAVERSTOCK & OWENS LLP

Dated: 7-1-04

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